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Economic utility of a "green pharmacy" culture

The most sophisticated chemical factory in the world would not match the synthetic power of the lowliest herb. So many different chemical compounds are being synthesized in the same one plant at any one moment than is possible in any chemical factory in the world. In order to synthesize a very simple chemical molecule artificially it would require so much space and money to construct the chemical factory for this purpose. In contrast this analysis of space and money are of insignificance when it concerns a single plant. Yet the chemical substances which are being produced in even the lowliest of herbs are so much complex in structure that it is inconceivable for human efforts to duplicate them in a manmade chemical factory. Humanity already possesses in the plant kingdom the most sophisticated and efficient chemical factories ever possible.

Plants are useful in themselves in that they are involved in maintenance of the natural cycles of Earth. This means that if mankind did not obtain anything more plants would still be considered as beneficial to humans. In addition to their own usefulness, however, the chemical substances that are produced by plants are also useful to mankind in many varying applications, including their uses as raw materials, nutrients and drugs. For reasons which are not immediately identifiable plants that have medicinal application are all referred to in common terminology as "herbs". The practice of using plant resources in the treatment and prevention of diseases is therefore termed herbal medicine, and the concept of employing naturally-derived chemical compounds as mainstay in therapeutics and prophylaxis we may now term *"green pharmacy*". Indeed, herbs are no meagre sources of drugs for human usage. The full diversity of all known drugs and even more are obtainable from the plant kingdom. One would find in medical history that drugs research began with plants and even in current medical practice several drugs are still being used which were first isolated from herbs. Many of what has been called "miracle drugs" continue to be found from herbs. These are natural chemical substances which are effective for treatment of the many serious, or if you like dangerous, diseases for which the

Pedanius Dioscorides (ca. 40—90 AD). Greek physician, pharmacologist, botanist, and author of *De Materia Medica*. Accompanying the Roman armies in their expeditions throughout the then known world, Dioscorides is here depicted observing plant species on the wayside.

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existing synthetic drugs are ineffective. It is therefore very unfortunate that herbs are being ignored and maligned in orthodox medical practice.

In this and the following three short paragraphs the reader is here being led to recognize what has been called the economic utility of herbs. These are four reasons why the government and citizenry of a developing nation such as Ghana should depend on herbs for drug resources. The first point concerns ease of access to herbs. Among the plant resources within any geographical area one would find several useful herbs. It is already known that remarkable overlapping exists in the range of chemical substances plants synthesize, so that when taken together the herbs in any one geographical location are not unique but similar to the herbs in another geographical area. The implication of this statement is that the population of any country could confidently depend on indigenous plants to obtain all their herbal resources. It is a common misconception that superior herbs are those found in only specific foreign lands. The countries of the world are placed on the same platform on the basis of access to herbal medicines. There is no difference between a developed nation and a developing one as every country has its own natural supply of indigenous herbal drugs. If a developing country depended on its indigenous supply of herbs for treatment of diseases it would not have to import synthetic drugs from foreign countries. One of the elements which developed nations employ to maintain their economic dominance over developing countries is the chemical industry. It is inconceivable how a developing country like Ghana could catch up with, for example, the United States in the production of drugs and other synthetic chemical substances. Developing countries would ever have to import synthetic drugs at high cost from the already advanced countries to meet the drug needs of their populations. This dependency syndrome would be curtailed if such a developing country reverts to its indigenous herbs for drug needs. This situation would afford such a country a considerable measure of economic freedom and greater possibility of fulfilling the medical needs of its population.

The second point is the low cost of herbal drugs in comparison with synthetic drugs. Despite the fact that herbs would require initial processing in some cases to make them usable, all things considered, it is far more expensive to produce synthetic drugs than herbal drugs. The design and construction of a chemical factory cost so much investment capital. On the contrary an herb may be usable in the raw state and if processing is required at all such procedures are so simple as to require only a few basic equipment. Any healthcare system which heavily depends on herbs for drug resources would operate on a smaller budget than one which is based on synthetic drugs. When a government has successfully reduced its healthcare expenditure using this approach it would have much surplus funds to invest in other sectors of the economy.

The third point is that the herbal drug industry is protective of the environment whilst the synthetic drug industry promotes environmental degradation. The chemical industry is known to be responsible for producing most of the environmental pollutants that are threatening the ozone layer, oceans, land and forests. The herbal drug industry on the other hand has plant cultivation as its basis. Such observance of "green culture" as in the farming of herbs engenders such secondary benefits as replenishment of oxygen supply in the atmosphere, protection of ozone layer, cooling of environmental temperature, and maintenance of natural cycles of Earth. As populations revert to herbs for drug resources they would have solved the problem of global warming to a large extent.

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The last, but not least, point is that the herbal drug industry has the potential to provide employment for the greater number of the population than is possible by the synthetic drug industry. In the chemical factory the fact is that much of the manufacturing processes are being performed by automated machineries. On the contrary the cultivation of raw herbal drugs is a very labour-intensive enterprise which would require so many peasant farmers each working in small scale to produce sufficient quantities to meet the demands of the population. Thus cultivation of herbs alone would provide employment for a large number of citizens of the country. Between the farmer and the patient who consumes the herbal drug the herbal drug industry would enable the practice of several other professions. Such intervening professions would include the pharmacist who would prepare the raw herb into a usable product; the medical doctor who would prescribe the herbal drug in treatment of diseases; and the nurse who would administer the drug to the patient at the hospital ward. Two other professions are the agronomist who would be occupied with the breeding of superior species of herbs; and the clinical pharmacologist who would research into the medical applications of herbal drugs. By a thorough comparison one would find that herbal drugs have greater economic utility than synthetic drugs and that by using them developing nations would not only satisfy their drug needs but would also actualize economic emancipation.

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